DOCUMENT RESUME

ED 091 511 CE 001 263

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TITLE Sources of Knowledge Utilized in Curriculum Change in Nursing Education.
PUB DATE Apr 74
NOTE 25p.; Paper presented at the Annual Meeting of the American Educational Research Association (59th, Chicago, Illinois, April 1974)

EDRS PRICE MF-$0.75 HC-$1.85 PLUS POSTAGE
DESCRIPTORS Case Studies (Education); Classification; Curriculum Design; *Curriculum Development; Educational Change; Educational Innovation; Educational Planning; Educational Programs; Educational Research; *Information Seeking; *Information Sources; Information Utilization; Knowledge Level; *Medical Education; National Surveys; *Nursing; Scientific Methodology

ABSTRACT

A study was conducted to suggest an answer to questions in nursing education concerning what educational changes are necessary, which directions those changes should take, and what type of approach should be used to introduce them. The study investigated the extent to which scientifically obtained knowledge is utilized in the process of change in nursing education, using selected innovations as the focus for the study. Information was obtained through a national survey of current curricular innovations in nursing as was determined by questionnaire and through a small number of case studies. The case studies indicated that there were various stages in each innovation process for each curriculum change. Several different modes of identifying the knowledge needed were determined in an attempt to classify the approaches used for deriving knowledge. The quality of the evidence was not assessed, however. A literature review pertaining to sources and methods of obtaining knowledge was utilized. (A 36-item bibliography and a classification scheme for the approaches used in deriving knowledge are also included.) (KP)

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SOURCES OF KNOWLEDGE UTILIZED IN CURRICULUM CHANGE IN NURSING EDUCATION

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Presented at the Annual Meeting of the
American Educational Research Association
Chicago, April 1974
Session # 22.07

CE001263

SOURCES OF KNOWLEDGE UTILIZED IN CURRICULUM CHANGE IN NURSING EDUCATION
(Based on five case studies)

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OVERVIEW

The accelerated rate of change in recent years, and the far-reaching implications of this for all institutions in society, are well-recognized. The domain of education has not escaped from the impact of this rapid change.

American higher education has been subjected to pressures to change and reform itself both from external and internal forces. A vast array of reports, critiques and analyses have come out during the past few years calling for a fundamental rethinking of the higher educational system.

Within the nursing profession there is a widespread recognition that changes are needed if the profession is to survive and meet the challenges facing it. (Walker, 1970, p. 330; Wallovick, 1970, pp. 408-413; Feinkemeyer, 1970, pp. 340-355). Nursing educators have for long recognized deficiencies in the content, organization and administration of nursing curricula. That changes in nursing education are necessary, desirable, and inevitable, are well-accepted. Beyond that, there are complex questions concerning the direction the changes should take, the nature of the changes and the approach to be used in their introduction.

As the problems faced by institutions of higher education increase, knowledge expands at a rapid rate, and in every walk of life one is made aware of 'knowledge explosion.' With increased

knowledge, there seems to be an urgent sense that reliable and relevant knowledge must be put to good use to meet human needs: and the fifty year lag (Wort and Cornell, 1941) between the 'invention' of an educational idea and its application in schools has been decried by educators (Jung, Fox and Lippitt, 1967, p. 68) and the public.

The amount of research in nursing and nursing education has increased considerably in recent years. Moreover, Notter attests to a considerable improvement in the quality of that research. (Notter, 1971 p.3). Yet, it is not clear in what ways the available research findings are being utilized for the education of nursing practitioners. Abdellah had this to say: "A major gap in nursing is translating significant research findings into practice and education" (Abdellah, 1970, p. 245). This apparent gap between knowledge and its use has been of concern to Henderson (1964, p. 160), and others.

It is contended that not only can educators benefit from knowledge produced by research, but their use of such knowledge can encourage further research. Lazarsfeld and Sieber maintain that "lack of interest in research discourages new effort. If results are not implemented, they can not be evaluated, so the researchers will remain ignorant of the utility of their work, and the practitioners will remain skeptical. Therefore, the corrective process, which is important in applied research, will be hampered." (Lazarsfeld and Sieber, 1964, p. 8).

Many changes are occuring in nursing education. Nursing faculties are continously engaging in curriculum development to im-

prove their curricula, and they are making decisions that affect the quality of the educational experiences nursing students engage in. Yet, no studies have been undertaken to investigate the extent to which curricular changes are based on a foundation of validated knowledge. It seems important to undertake such an investigation as nursing moves toward full professional status and in view of the claims made as to the scientific basis of nursing. (Rogers, 1970).

This study proposes to investigate the extent to which scientifically obtained knowledge is utilized in the process of change in nursing education, using selected innovations as the focus for the study. The rationale for using innovations as focus is that acceptance of innovations is recognized as an important mechanism for achieving change (Katz, Levine, and Hamilton, 1963, p. 237); moreover, the purpose of knowledge utilization is to bring about change and improvement in institutions. (Chin and Benne, 1969, p. 33).

Statement of the Problem

The problem to be investigated can be stated as follows: to what extent are selected innovations in baccalaureate nursing education developed or accepted on the basis of validated knowledge?

Conant has stated that as a practice discipline nursing needs to pursue research not only in the area of acquisition of knowledge but also in the area of the use of knowledge. (Conant, 1968, p. 71). The present study investigates one aspect of knowledge use in curriculum change in nursing education.

Method of the Study

This report is part of a larger study (Ketefian, 1972); data were obtained in two phases and they will be briefly described.

Phase I

A national survey of current curricular innovations in nursing education was undertaken by means of a questionnaire administered to the deans of baccalaureate nursing programs. 85% of all questionnaires were returned, reporting a total of 226 curricular innovations in all parts of the country.

With the assistance of a panel of expert judges who were authorities in nursing education, the most significant innovations were then identified. The number of the latter was 13.

From among the 13, five innovations were selected for study, representing different regions of the country, and selecting institutions of varying size and control.

Data Source - Phase II

The aim was to write a small number of case studies depicting the process whereby curricular changes were planned, adopted or accepted, and to identify the sources of knowledge that were utilized during the process of change.

In order to obtain the data needed, in-depth interviews were held with the innovators/advocates responsible for leading the curriculum change effort, as well as with the deans of the schools concerned.

Utilizing the various sources and methods of obtaining knowledge discussed in the literature, a classification scheme was devised in order to classify the knowledge or information sources utilized during the change process. The items in the scheme were derived from the content of the case studies, but their organization was guided by the literature reviewed. (See Appendix A attached for the classification scheme).

Definition

Innovation - For purposes of this study, innovation is defined as a "species of the genus 'change.'" (Miles, 1964, p. 14). In this study it is used to mean a planned, new, and specific change in the educational environment of the school of nursing that affects the nursing students. An innovation is introduced because of the expectation that it can accomplish the objectives of an institution more effectively. The innovations to be considered in this study will be those in the areas of subject-matter and instructional methods.

Limitations

1. The sample is limited to five highly selected curricular innovations; this precludes the generalizability of the findings.

2 The data collected will be retrospective in that the innovations have already been instituted; it is therefore recognized that some of the facts provided by the respondents may be distorted because of reliance on recall.

3. Since data will be obtained from persons who were involved in making the innovations, certain biases may be introduced in the information provided.

4. Although effort was made to classify the range of all resources that were important during the innovative process, it remains a limitation of the findings of this study that no exact information could be obtained to assess the quality of evidence underlying such resources.

REVIEW OF LITERATURE

The Role of Research in Nursing

Among nurse educators and social scientists who are students of the professions, there seems to be unanimous agreement that a profession has a systematized body of knowledge which is continuously expanded through study and research. Merton maintains that a profession "not rooted in systematic knowledge is a self-contradiction, a myth rather than a reality...The provision of research personnel and resources is one of the great requirements of a profession...The silent revolutions in all professions have come as a result primarily of knowledge enlarged through research." (as quoted in Heidgerken, 1962, p. 140). Similarly, McGlothlin agrees: "A profession can be dessicated if too few qualified persons enter it, or if too few research findings are added to its fund of knowledge...If few persons enter a profession, it can not execute the tasks assigned to it...If too little research is undertaken the profession relapses into executing its functions by imitations rather than by understanding." (McGlothlin, 1961, p. 215).

As a practice field, nursing is concerned with bringing about changes toward certain ends. Both Gouldner (1965, p.8) and Greenwood (1961, p.74) would thus classify nursing as a technology. Greenwood applied the term "to all disciplines designed to achieve controlled changes in natural relationships by means of procedures that are scientifically-based...Technologists who work with people are 'practitioners'." (1961, p. 74).

Heidgerken concurs with the above definitions, and she further states that the purpose of research in a professional field is "converting relevant science theory into utilitarian forms and structures which it can use." (1962, p.141). The 'relevant science theory' may be from any discipline that can contribute knowledge toward the solution of problems that concern the profession. Mauksch further supports this contention and explains

how the above process would contribute to the expansion of a profession's body of knowledge: "The very process of re-organization and interpretation of knowledge for purposes of professional practice, and the formulation of criteria of applicability and validity change the attributes of units of knowledge so that in this process of transition and selection we witness the development of the armamentarium of a profession." (1968, p. 102).

Sources of Knowledge and Methods of Obtaining Knowledge

Throughout the ages, man has obtained knowledge from various sources, and has developed different approaches for dealing with problems and uncertainties facing him. Philosophers of science and social scientists have offered classifications of these approaches (Cohen and Nagel, 1934, ch. 10; Buchler, 1955, ch.2), and Chase's (1956, ch.1) seems to incorporate most of what is in other classifications. Various sources of obtaining knowledge as discussed by Chase (1956, ch.1) are:

1) Appeal to supernatural. This entails reliance on faith; it is held that problems can not be solved rationally; this is also accompanied by an attitude of resignation in the face of problems:

2) Appeal to worldly authority. What tradition and habit, and persons with prestige, dictate become very important;

3) Intuition. In this approach, some persons are said to have a mystical kind of insight;

4) Common sense. This approach is based on a person's ability to reason, and to draw on his past experiences;

5) Pure logic. This method imploys rational analysis and the method of deduction is said to yield reliable knowledge;

6) The method of science. This is said to be the only approach that can provide reliable knowledge. (1956, ch. 1). This method is characterized by self-correction and objectivity. (Kerlinger, 1967, p.7). There are built-in checks based on reality outside of the investigator's person to insure that the knowledge thus obtained is dependable. (Kerlinger, 1956, p. 7).

Contrary to the commonly held belief, there is no one scientific method, and a number of authors (Handy, 1964, pp.12-12; Kaplan, 1964, p.27) prefer not to define the term scientific method. Kaplan gives this reason: "If a definition of 'scientific method' is specific enough to be of some use in methodology, it is not sufficiently general to embrace all the procedures that scientists may eventually come to find useful." (1964, p.27). Kerlinger seems to agree with the contention, and adds that "it can probably be validly said that there is one scientific approach." (1967, p. 7).

A very broad definition of the scientific approach is provided by Lundberg when he said that the method involves "systematic observation, classification and interpretation of data" (1942, p. 5) that can be performed with varying degrees of formality and rigor, and he identifies four levels of these:

1) Random observation. This is the crudest level of research; its main usefulness is said to be in suggesting further avenues of investigation;

2) The second level of research is systematic observation and exploration of broad subjects;

3) The third level of research involves the testing of specific, explicitly-stated hypotheses; they may be done by means of experiments or statistical methods;

4) The highest level of research involves "experiments or other crucial compilations of data," that are guided by complete theoretical formulations rather than specific hypotheses. (Lundberg, 1942, pp. 6-7).

A number of steps have been identified that could be employed in investigations at each of the four levels discussed above in order to insure that the knowledge obtained is reliable.

1) The working hypothesis is a tentative statement that needs to be substantiated.

2) Observation and recording of data. The accuracy and objectivity of these are crucial.

3) The classification and organization of data in order to see if uniformities or differences appear in the phenomena being investigated.

4) Generalization. This is a statement that applies the regularities observed to other similar phenomena in the universe that was studied. The generalizations in a field are refined as more data become available. (Lundberg pp. 9-10).

The question arises as to whether or not the steps in the scientific approach discussed above are as appropriate for investigation of problems encountered in the social, behavioral and applied fields as they are in the physical sciences. There are different points of view on the issue and Handy summarizes these when he says: "On the one hand are those using excellent scientific methods on almost trivial problems, and on the other are those working on important problems, but not in a way that can be called scientific." (p.70). Maslow (1954) and Allport (1955, pp. 11-12) maintain that problems themselves are more important than the precision of the techniques used, and they have both been critical of the consequences of undue emphasis on means.

Those who advocate precision of measurement and method admit to the accusation that this has led to exploration of simpler problems, but they hope that understanding of simple phenomena will lead to a better understanding of complex phenomena. (Handy, 1964, pp. 73-74).

There are others who reject the polar extremes put forth above, and advocate combining them. Among these are Handy (pp. 169-175) and Lundberg (1942, pp. 19-25). Lundberg has advocated for many years the use of hard science approach for investigations of important problems in the social and behavioral sciences. He does not, however, advocate that the social and behavioral sciences be restricted to the techniques used by natural sciences. Lundberg further maintains that the function of scientific investigation is to find "systematically related and significant 'if...then' propositions which are demonstrably probable to a certain degree under given circumstances." (1961, p.35).

Among nurse educators and researchers there are different viewpoints as to the function of research in nursing. Rogers has stated that "theoretical knowledge in nursing is dependent on research." (Rogers, 1961, p.43).

Some authors maintain that theories are needed in nursing to guide nursing practice and education. Brown advocates that nurse researchers "build a body of scientifically tested nursing theory from which may be drawn the facts, concepts, and principles on which to base the education of nurses and the nursing care of patients." (Brown, 1964, p. 109). Yet, in the same article she goes on to say that in designing a research project the researcher should be after "the pursuit of knowledge for the sake of knowledge." (p.111).

Folta holds a different viewpoint when she claims: "The objective of any science is to achieve understanding -- that is, predictability and explanation. This is no less true of the applied sciences than for the pure. The basic difference appears to be one of emphasis. That is pure research is the application of the scientific method to add to abstract knowledge while applied research is focused on the application and testing of the findings of the pure researcher. Both draw on whatever theories or systematic knowledge is available at a given time." (1968, p. 503).

Peplau's view is that as an applied field, nursing "develops its principles by interrelating ones from all other known sciences and applying them to everyday problems." (1952, p. 14).

Those writers who hold the view that research in nursing should aim at developing and testing theories that can be the basis for education and practice have not dealt with the question of how the variables, concepts, and relationships discovered to be important through research can be interpreted, and related to specific and concrete situations in the practice or educational environments. This issue has seldom been raised or considered. It appears that it is assumed that once theories, principles and other scientifically-based knowledge become available, then they are ready for application.

Lippitt has concerned himself with the ways in which scientific resources might be of use in solving problems encountered in practice situations. He has identified six patterns of using scientific resources based on the work of the staff at the Center for Research on the Utilization of Scientific knowledge at the University of Michigan, which is involved in dealing with and alleviating social problems by using relevant knowledge. (1967, p. 71).

Some of the approaches bring the needed resources from outside the social system, and some approaches develop the needed resources internally. (Lippitt, pp. 72-76).

Patterns of bringing in scientific resources from outside

1) A scientist, in cooperation with practitioners, identifies a practice problem, which in turn is used to retrieve relevant knowledge; implications are derived from the knowledge to deal with the problem of practice.

2) A controlled experiment is performed by scientists outside of the practice situation. If successful, it is further demonstrated in real settings, necessary adaptations are made and the new practice is recommended for use.

3) Creative practices are located in other institutions, their appropriateness to problems in a new situation is ascertained and their essential features are used.

Procedures that develop the needed knowledge within the system

1) One procedure for developing needed knowledge is for an agency to request experts to collect and analyze data on some practice problem for use by the agency staff.

2) A second approach is for agency personnel to identify the problems they face, and develop the needed changes; this is done with the assistance of outside experts who train and guide the local staff.

3) The third approach is quite different in that it recognizes that practitioners need training to develop inquiry methods and in information-getting methods; such training is then provided.

The models proposed by Lippitt all seem to involve persons from outside a given institution who assist staff in various capacities; this is a limitation, as it appears to assume that an agency cannot, or does not generate its own knowledge either in terms of information-gathering, its analysis, or in terms of developing certain solutions to deal with given problems. Such an assumption cannot be borne out in reality; an agency may, for instance, have an 'expert' on its own staff, who can then assume a leadership role in that agency in generating the needed knowledge appropriate for their problems. Or, it is conceivable that an agency may not have an 'internal expert', yet, for different reasons, forego seeking any outside assistance, and simply rely on its own resources in generating the knowledge needed.

PRESENTATION OF FINDINGS

It was clear from the case histories that there were a variety of stages suggested in each innovation process for each curriculum change. These ranged

from seven to ten stages for each case. The stages identified were: examining the existing curriculum; expressing dissatisfaction with the curriculum; becoming aware and showing interest in a new idea; identifying problems that cause dissatisfaction; exploring different ideas and conceptual bases for a new curriculum; trying an idea; making decision to innovate; developing objectives, philosophy and structure of a new curriculum; developing the innovative curriculum; small-scale testing and making revisions as indicated; implementing; engaging in evaluation-both formative and summative. The innovation process lasted from three to five years. It was also apparent that a host of factors needed to be considered in accepting or developing an innovation, and that knowledge was only one such resource. Therefore, in order to identify the usefulness of knowledge and other information sources during each stage of the innovation process, a classification scheme was devised where the items were derived from the content of the case studies. The literature already reviewed served as a guide for organizing these in a meaningful way. The scheme has validity in that it evolved from the data being analyzed. In order to ascertain the validity of placing the items under the categories created one case study was read by two individuals - a social scientist and nurse researcher - who stated that the items in the classification scheme represented the content of the case and that their placement under the large categories was appropriate.

Consistency over time was checked by the investigator, who obtained the same results when the scheme was applied to all five cases after a period of three weeks. The scheme appears in Appendix A.

As may be seen from Appendix A, "knowledge" has been categorized on the basis of the rigor of the means for obtaining/generating it, and on the basis of who were involved in the process; namely, faculty; faculty, with assistance of the outside experts, or other persons/institutions not related to the

school under consideration.

The predominant mode of identifying the knowledge needed is done by one or more faculty members via various mechanisms. These included, among others, discussions among members of the faculty; holding workshops to explore the problems and arrive at solutions; to administer questionaires to faculty or students and faculty; analyzing nurse-patient interactions to identify nursing content; conducting an experiment to find the effect of a certain treatment on the experimental group. These have been classified into "unsystematic observation," "systematic study," and "testing of hypothesis," depending on the rigor of the approaches involved, to the extent that could be determined. The classification scheme lists the various approaches under the appropriate category. Knowledge thus generated is carried out with the resources that exist within the school.

Another important mode of obtaining knowledge was that faculty generated the knowledge in consultation with an expert in a field. Such a person is a specialist, and an objective observer who is said to be useful in "how to diagnose needs, how to identify resources, and how to retrieve from expert sources." (Havelock, 1968, p. 6-7). If this contention is true, then the group seeking such assistance remains active and has responsibility for carrying out any study that is undertaken, and the consultant remains in an advisory role. These have also been separated into "unsystematic observation," "systematic study," and "testing of hypothesis," depending on the rigor of the approaches involved.

Other modes of obtaining knowledge were: knowledge generated by some other agency or school in a systematic manner. These were obtained by learning about them at workshops; or, some faculty member was previously connected with an institution, and having known about the case, made use of it in revising the curriculum. Other resources were the literature, and new faculty

members who had knowledge of a particular skill that became useful for the work at hand.

Knowledge obtained by various means was the most useful resource for all five cases at the time of developing the innovation. This suggests that each innovation is knowledge-based, although some more so than others; it needs to be noted that other resources have been used too during that stage. Among these were criteria established by authoritative persons or agencies; observation of curricula in other schools; and the judgments and experience of the people involved.

The next stage during which there is evidence of knowledge use in all five cases is at the time of formative evaluation, although other information seems to have played an equally important part. In two cases the innovation has been in operation long enough that the achievement or non-achievement of its major intent can be evaluated; both of these schools are currently engaged in summative evaluation using rigorous means such as conducting an experiment to see the effect of a treatment or a teaching strategy on the experimental group; studying the relationship of personality tests to performance. In two cases the implementation will soon be completed in that the first group of students from the new curriculum will gtaduate; in those two instances there are no plans for summative evaluation. In the fifth case, such evaluation is expected to take place within three years when the first group of students graduate.

In three cases, the decision to innovate is primarily based on knowledge obtained by means classified as "systematic observation;" in three cases, the initial trial of an idea is based on knowledge such as above, although in one case the guide was common sense and judgment.

In three cases, just prior to implementation, a small-scale testing was done. One of these involved a one year pilot project, another test involved trying a teaching approach that was part of the innovation, over a period of one year with one class; these were both knowledge-based, and the test resulted in a number of revisions in the project. In the third case, testing involved judgments of faculty and students of the programmed units of study.

In two cases, there was no prior testing of any part of the innovation; interestingly enough, these are the two cases where no summative evaluation is expected to take place, this might suggest that the innovators/advocates in these situations have great certainty that the curriculum is successful.

In two cases where there was a stage of problem identification, they were both knowledge-based, the knowledge was derived by "systematic observation" such as analysis of questionnaire data, and holding workshops.

In three cases where dissatisfaction is a stage, these expressions came from authoritative sources and from students, although in one case there was knowledge, too, in the form of faculty task groups engaging in study.

In three of the cases, there are one or more stages where there is no evidence that knowledge or other resources were utilized.

As can be seen from the classification scheme used here, what is classified are the approaches used for deriving knowledge. Lundberg's definition of science is that "it is a technique of deriving reliable knowledge" (1942, p.5) about some phenomenon. It must be noted that the information available on the "techniques" employed for deriving knowledge in the five curricular change processes is insufficient to warrant making a definite statement about whether or not the knowledge derived is or is not reliable; and the statements made in this regard should be viewed as tentative rather than definitive.

Furthermore, it cannot be said, applying this classification scheme, that where a greater number of activities were reported for the purpose of deriving knowledge, that curricular innovation is based on more reliable knowledge than when lesser number of activities were reported. By the same token, when there is no evidence that knowledge or other information have been utilized during a particular stage, it cannot be said definitively that no resources were utilized at that stage.

DISCUSSION

Although the selected nature of the five curricular innovations studied precludes the generalizability of the findings to all schools of nursing, the findings have certain implications for curriculum development activities in nursing education. In addition, data point to areas that need to be further explored.

The majority of nursing schools were engaged in changing their curriculum with the expectation of improving it. This is clearly evidenced in the fact that 71 percent of the schools that responded to the initial survey questionnaire reported one or more curricular innovations. It is not known what the rate of success and failure was; yet, in order to reduce waste, it is important to employ those strategies and the relevant knowledge that are likely to increase the possibilities of success and reduce that of failure.

A sound knowledge basis for curricular innovations appeared important, but did not seem sufficient, in and of itself, to assure the successful implementation of a curricular change. In addition, it seemed important to pay attention to the normative orientations - attitudes, values, and commitments - of the people involved in a change effort.

Innovations tended to succeed in implementation when prevailing behaviors and regularities changed to carry out their intent. For instance, can the traditional classroom structures be maintained, and lectures given, when the

intent of a curricular innovation is to individualize instruction?

Although effort was made to classify the range of all resources that were important during the innovative process, it is a limitation of the findings of this study that no exact information could be obtained to assess the quality of evidence. For instance, when a workshop was held to consider and deal with an issue that was classified as a method of deriving knowledge by "systematic observation." Although effort was made during the interviews to get more precise and specific information on how knowledge was derived during a workshop or in the process of consultation with experts, this was not always possible. It is likely that one reason may have been the fact that respondents were recounting events that had occurred a few years earlier,and found it difficult to recall specific details. Another reason may have been due to the fact that the interview questions were double-pronged, and they were directed to identifying the process of change as well as the sources for any knowledge or information that had been important influences during that process. This prevented exclusive concentration on either the knowledge sources or on the process of changing. However, it is interesting to note that respondents seemed to recall processual facts more readily than they did facts with respect to sources of knowledge. The slant of the questions may have caused this, but this is only speculative.

On the basis of what has been said above, it may be profitable to disign and carry out research studies that would get at the quality of evidence that underlies the knowledge sources that this study has identified as constituting the basis for curriculum decisions. One method whereby such a study might be carried out is by the researcher participating and/or observing the curriculum change activities. Such an approach has the added advantage that it could yield information on the nature of knowledge that nursing faculties draw upon or produce during curriculum development. Such information could be useful and could have implications for planning the curricula of programs preparing

teachers; it could also have implications for the development of a science of nursing.

Another study might well involve a national study of all nursing programs engaged in curriculum innovation to find the rate of success and failure, and to identify the factors that make for success or failure. Such a study could be employed in order to reduce the possibility of failure and waste, and improve the possibility of success.

It is well known that research activities in nursing have increased, and their quality improved, during the past twenty years. Federal funds have been made available for research projects and the training of nurse researchers; annual research conferences are held by the American Nurses' Association as well as other regional agencies and private institutions. The advent of the American Nurses' Foundation and Nursing Research demonstrates the importance the profession places on research as a most important activity which will enlarge the knowledge base for the practice of the profession and for the education of its practitioners. Yet, it appeared as if each school in this study was engaged in its own effort, and there was little evidence that resources mentioned above were being utilized to any given extent. Why this apparent isolation between research activities at large and what happens in individual school settings? What is the nature of the communication between nurse researchers and nurse educators? Do nurse educators perceive that the researchers relate to the problems they face? Do nurse researchers concern themselves with translation and application of their work? These are questions that need to be further explored.

An important question that arises pertains to the conditions under which a school is likely to be innovative. What are the ingredients of a faculty group that is most likely to be engaged in innovative curricular development activities For instance, are faculties engaged in research activities likely to be more innovative than those who are not? Are there general orientations that make

some faculty groups more susceptible to change than others? What are the elements of such orientations? What student-faculty ratio needs to be maintained? Data do not provide the answers to these questions.

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APPENDIX A

CLASSIFICATION SCHEME

I. KNOWLEDGE

A. Knowledge generated within a school by single or group of faculty members.

1. Mode of obtaining or generating knowledge classified as "unsystematic observation" includes activities such as:

1) Making certain observations about a situation or having certain impressions, and using those as basis for action.

2) Holding meetings for discussions.

3) Holding meetings to decide where certain courses should be placed in the program and what learning experiences should accompany them.

2. Mode of obtaining or generating knowledge classified as "systematic observation" includes activities such as:

1) Workshops held by faculty.

2) Faculty task groups engage in study.

3) Administering questionnaires and analyzing results.

4) Formation of committees, teams, groups, to carry out a specific mandate such as engaging in study to make recommendations, or to plan/develop curriculum or courses, or teaching models, writing objectives, philosophy, designs.

5) Trying out a course or teaching approach, then studying its efficacy by evaluating student performance and student reactions/evaluations.

6) Analyzing interviews with students, their achievement, anecdotal records, their self-evaluations.

7) Analyzing content of courses.

8) Identifying content of nursing courses by studying and analyzing reports of nurse-patient situations.

3. Mode of obtaining or generating knowledge classified as "testing of specific hypothesis" includes activities such as:

1) Comparing test results of experimental and control groups for effect of a certain treatment.

3) Giving personality tests to study their relationship to performance.

4) Research to compare effectiveness of teaching strategies.

B. Knowledge generated within the school by single or group of faculty members with assistance of expert(s).

1. Mode of obtaining or generating knowledge classified as "unsystematic observation" includes activities such as:

1) Having an interview with an authority in a field.

2) Talking casually with an authority in a field.

2. Mode of generating or obtaining knowledge classified as "systematic study" includes activities such as:

1) Comparing test results of experimental and control groups with assistance of an authority in his field.

C. Knowledge generated by other agencies/institutions and brought into the school.

1. Mode of obtaining or generating that knowledge classified as "systematic study" includes activities such as:

1) Information obtained while attending a workshop where studies were reported.

2) Other school had engaged in study and change of curriculum; some faculty knew of that and are influenced.

D. Mode of obtaining knowledge from relevant literature may include:

1) Reading research literature in a particular field.

2) Use of concepts derived from literature.

3) Use of knowledge from various disciplines to create a new framework to elucidate patient situations.

E. New faculty with relevant knowledge/experiences includes:

1) New faculty who have had experience in engaging in curricular change in innovative programs.

2) New faculty member has knowledge of an innovation or skill which she discusses at meetings or presents papers to colleagues.

II. AUTHORITY - or criteria established by:

A. Dean; Assistant Dean
B. National League for Nursing
C. State Board of Nursing

III. OPINIONS EXPRESSED BY:

A. Students
B. Faculty
C. Community agencies

IV. COMMON SENSE, JUDGEMENT, EXPERIENCE.

V. LOGIC

VI. OBSERVING/BEING AWARE OF WHAT OTHER PROGRAMS/AGENCIES ARE DOING; MAY OR MAY NOT BE RELATED TO THEIR WORK.

VII. SOCIAL NEED

A. To enable registered nurses to obtain degrees.
B. To enable graduates from junior colleges to pursue career near home settings.